

Patent claims

1. A radiation-emitting semiconductor component,  
having
  - 5 - a layer structure (12) which includes at least one  
photon-emitting active zone (16) arranged between  
a cladding layer (14) that is n-conductively doped  
and a cladding layer (18) that is p-conductively  
doped,
  - 10 - an n-type contact connected to the cladding layer  
(14) that is n-conductively doped, and
  - a mirror layer (20) arranged on the side, facing  
away from the active zone (16), of the cladding  
layer (18) that is p-conductively doped,
- 15 characterized in that  
the mirror layer (20) is formed by an alloy of silver  
with one or more metals selected from the group  
consisting of Ru, Os, Ir, Cu, Ti, Ta and Cr.
- 20 2. The radiation-emitting semiconductor component as  
claimed in claim 1, characterized in that the mirror  
layer (20) is formed by an alloy of silver with one or  
more metals selected from the group consisting of Ru,  
Rh, Pd, Au, Os, Ir, Pt and one or more metals selected  
25 from the group consisting of Cu, Ti, Ta, Cr.
3. The radiation-emitting semiconductor component as  
claimed in claim 1, characterized in that the mirror  
layer (20) is formed by a ternary alloy of silver with  
30 a metal selected from the group consisting of Ru, Rh,  
Pd, Au, Os, Ir, Pt and one or more metals selected from  
the group consisting of Cu, Ti, Ta, Cr.
4. The radiation-emitting semiconductor component as  
35 claimed in claim 1, characterized in that the mirror  
layer (20) is formed by a ternary alloy of silver with  
one or more metals selected from the group consisting  
of Ru, Rh, Pd, Au, Os, Ir, Pt and a metal selected from  
the group consisting of Cu, Ti, Ta, Cr.

5. The radiation-emitting semiconductor component as claimed in claim 1, characterized in that the mirror layer (20) is formed by a ternary alloy of silver with  
5 a metal selected from the group consisting of Ru, Rh, Pd, Au, Os, Ir, Pt and a metal selected from the group consisting of Cu, Ti, Ta, Cr.
6. The radiation-emitting semiconductor component as  
10 claimed in claim 1, characterized in that the mirror layer (20) is formed by an Ag-Pt-Cu alloy.
7. The radiation-emitting semiconductor component as claimed in one of the preceding claims, characterized  
15 in that the alloy of the mirror layer (20), in addition to silver, comprises a total of 0.1% by weight to 15% by weight, preferably 1% by weight to 5% by weight, of the abovementioned metals.
8. The radiation-emitting semiconductor component as  
20 claimed in one of claims 2 to 5, characterized in that the alloy of the mirror layer (20), in addition to silver, comprises 0.5 to 5% by weight of one or more metals selected from the group consisting of Ru, Rh,  
25 Pd, Au, Os, Ir, Pt and 0.5 to 5% by weight of one or more metals selected from the group consisting of Cu, Ti, Ta, Cr.
9. The radiation-emitting semiconductor component as  
30 claimed in claim 6, characterized in that the alloy of the silver layer (20), in addition to silver, comprises 1 to 3% by weight of platinum and 1 to 3% by weight of copper.
10. The radiation-emitting semiconductor component as  
35 claimed in one of the preceding claims, characterized in that the mirror layer (20) forms an ohmic contact either with the cladding layer (18) that is p-conductively doped or with a further semiconductor

layer that is p-conductively doped and is arranged between the mirror layer and the cladding layer (18) that is p-conductively doped.

- 5 11. The radiation-emitting semiconductor component as claimed in one of the preceding claims, characterized in that the layer structure (12) is based on nitride III-V compound semiconductor material.
- 10 12. The radiation-emitting semiconductor component as claimed in claim 11, characterized in that the layer structure (12) is based on InGaAlN.
- 15 13. The radiation-emitting semiconductor component as claimed in one of claims 1 to 10, characterized in that the layer structure (12) is based on phosphide III-V compound semiconductor material.
- 20 14. The radiation-emitting semiconductor component as claimed in claim 13, characterized in that the layer structure (12) is based on InGaAlP.